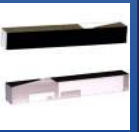


# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples



Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

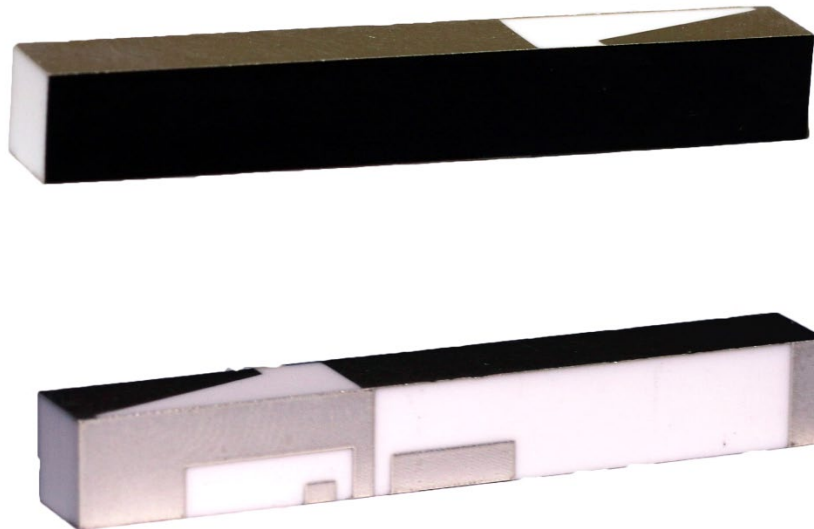
## Features

- Complies with Automotive Qualification (AEC-Q200)
- Complies with IATF 16949 Certification
- 4G/LTE full band coverage
- 2G/3G/GSM support
- Linear polarization
- Compact size

## Applications

- 4G/LTE/3G/2G/GSM applications
- Automotive, UAV, V2X
- IoT, M2M
  - Industrial, Infrastructure IoT
- Consumer electronics
- Wireless modules
- Video and surveillance
- Broadband cellular connectivity
- Networking & Telecommunications

## Product Image



# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples



Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Electrical Specifications

Parameter	Specification			Unit
Operating Frequency	700 ~ 960	1710 ~ 2170	2500 ~ 2700	MHz
VSWR <sub>max</sub>	4.5			
Efficiency	55	70	50	%
Impedance	50			Ω
Polarization	Linear			

\*All test measurements were conducted with antennas on an evaluation board of dimension 45 x 120 mm and under the environmental condition of +40 °C & 0-95% R.H.

\*Actual characteristics will depend on the application ground plane dimensions.

## Mechanical Specifications

Parameter	Specification
Antenna Dimension	37 x 05 x 05 mm
Material	Ceramic
Termination	Silver
Mounting Type*	Surface Mount (SMD)

\*Do not mount the antenna on a metal surface.

## Environmental Specifications

Parameter	Specification
Operating Temperature	-40°C to +85 °C
Storage Temperature	-40°C to +85 °C
RoHS / RoHS II Compliant	Yes
MSL	1
Environmentally Friendly	Pb free
Relative Humidity	0~95%

# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples

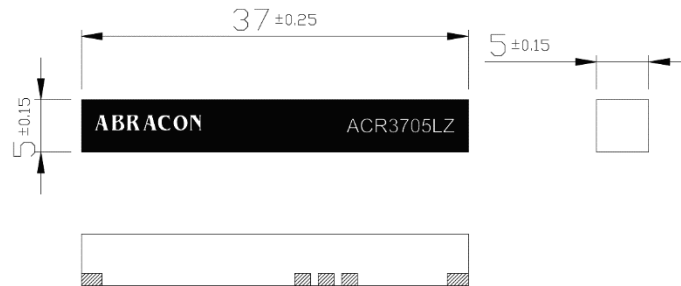


Check Inventory



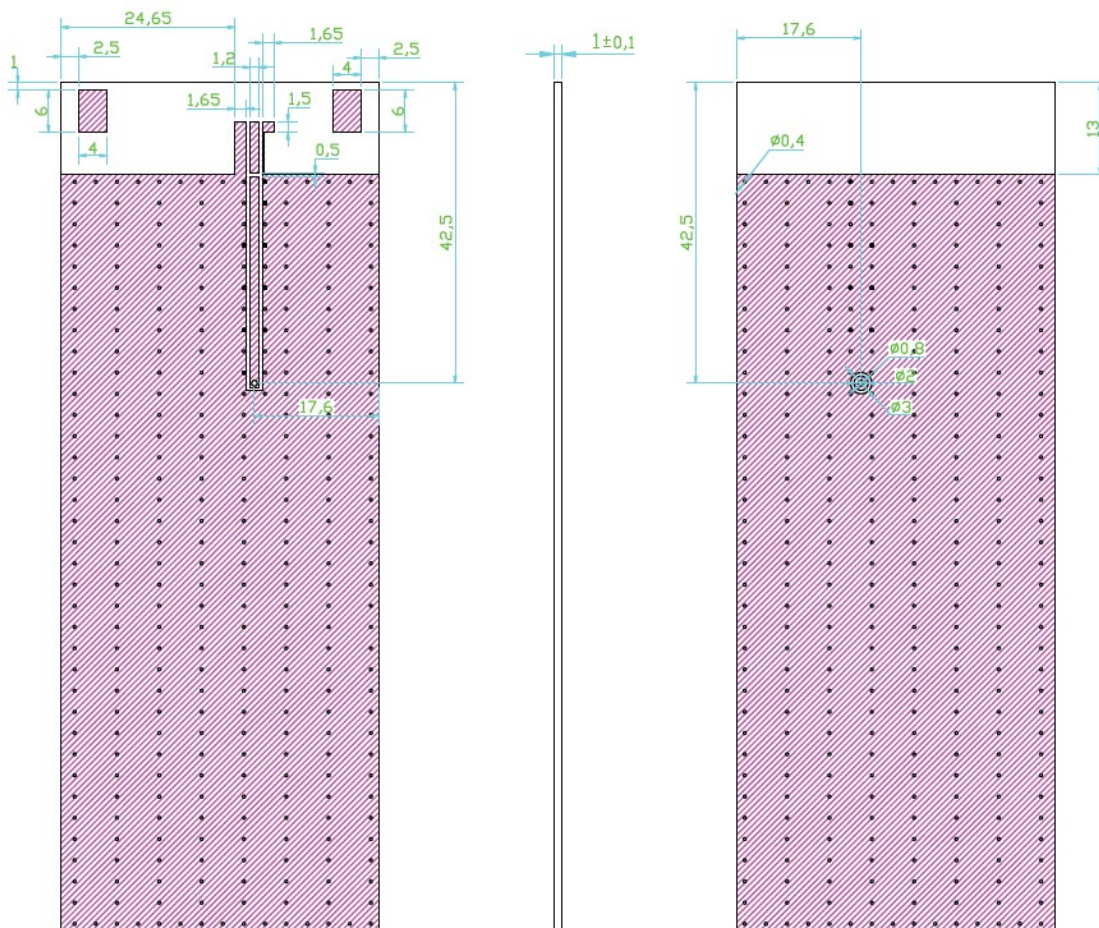
37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Product Dimension



Unit : mm

## Evaluation Board Dimension



Unit : mm



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 07-16-21

ABRACON IS  
ISO9001-2015  
CERTIFIED

# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples

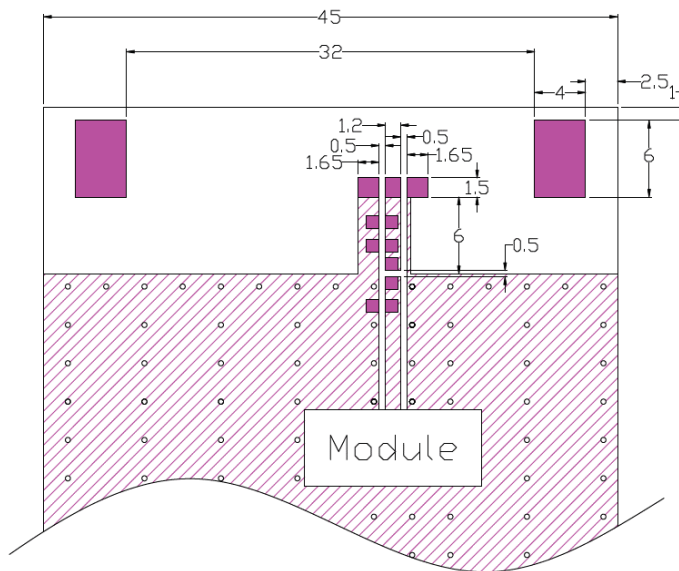


Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Recommended Layout Dimensions



Unit : mm

# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples

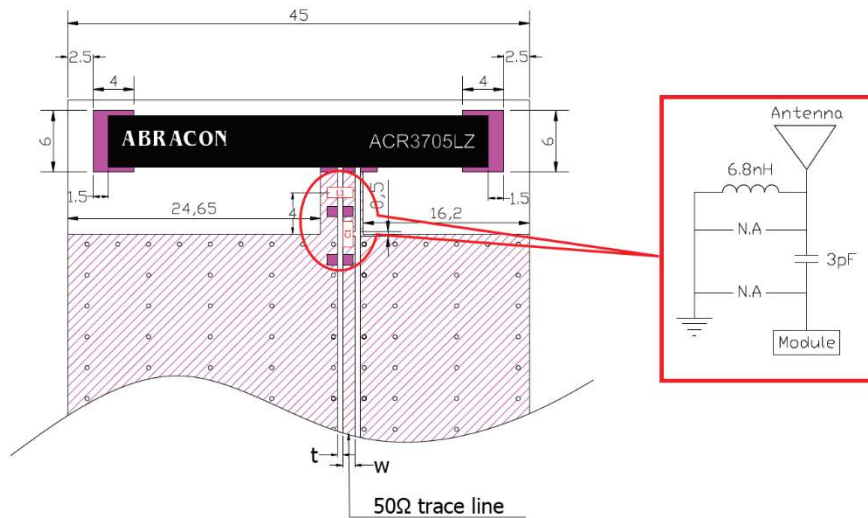


Check Inventory



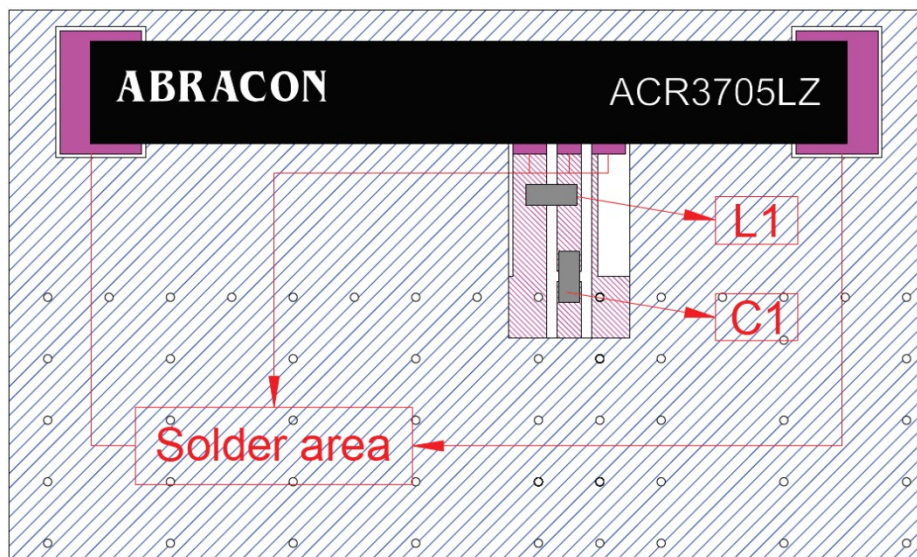
37.0 x 5.0 x 5.0 mm  
**RoHS/RoHS II Compliant**  
 MSL Level = 1

## Recommended Layout with Matching Circuit



Unit : mm

Note : t, w are unique in accordance with the PCB design



Circuit Symbol	Size	Description
L1	0402	6.8 nH
C1	0402	3 pF

# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples

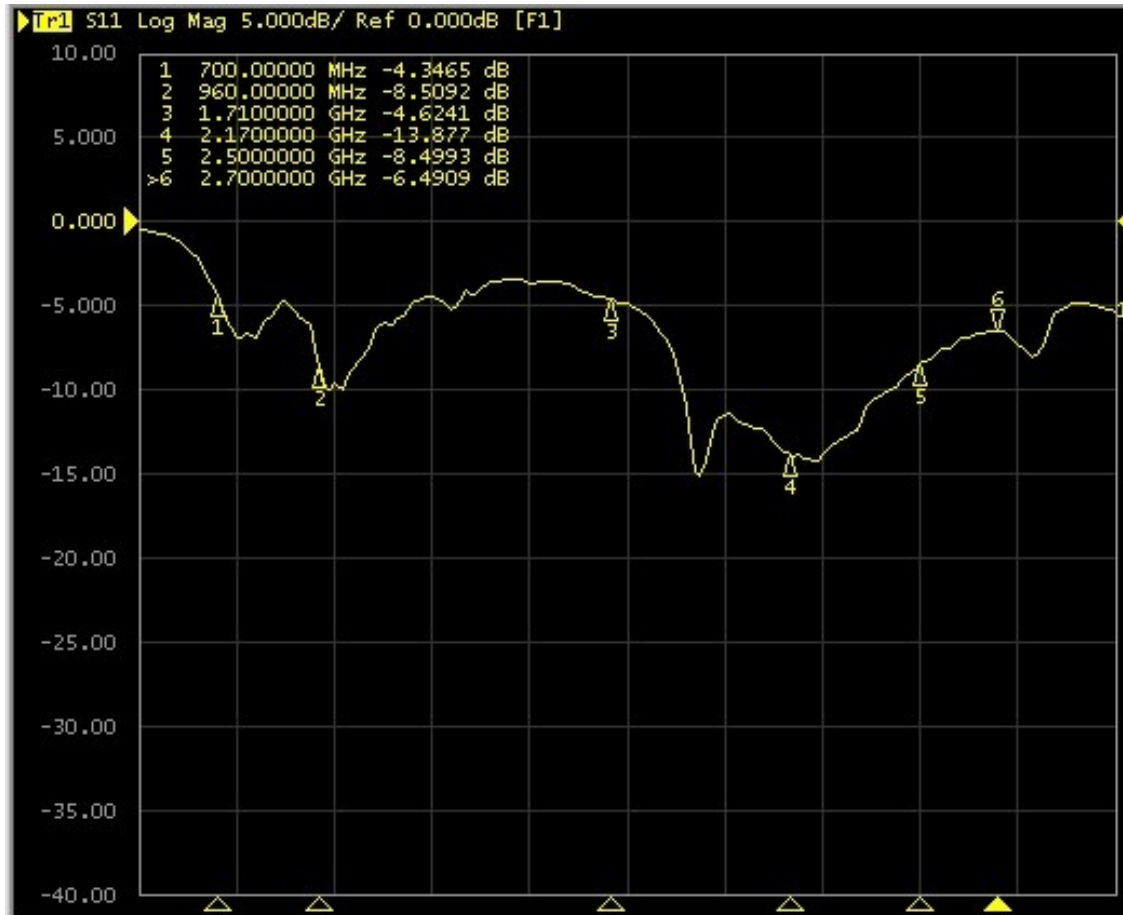


Check Inventory



37.0 x 5.0 x 5.0 mm  
**RoHS/RoHS II Compliant**  
 MSL Level = 1

## Test Measurement – Return Loss



Return Loss	700MHz	960MHz	1710MHz	2170MHz	2500MHz	2700MHz
S11	-4.34dB	-8.50dB	-4.62dB	-13.87dB	-8.49dB	-6.49dB

# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples

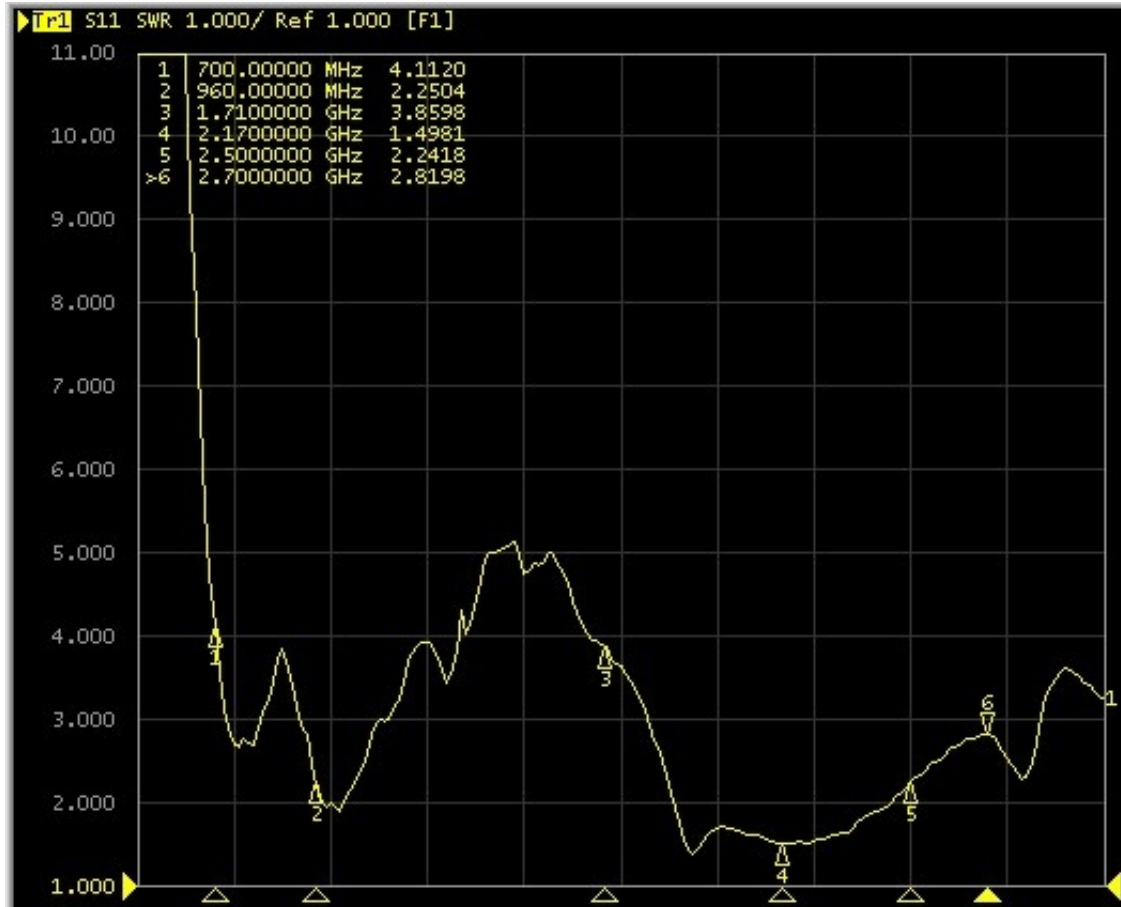


Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Test Measurement – SWR



# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples

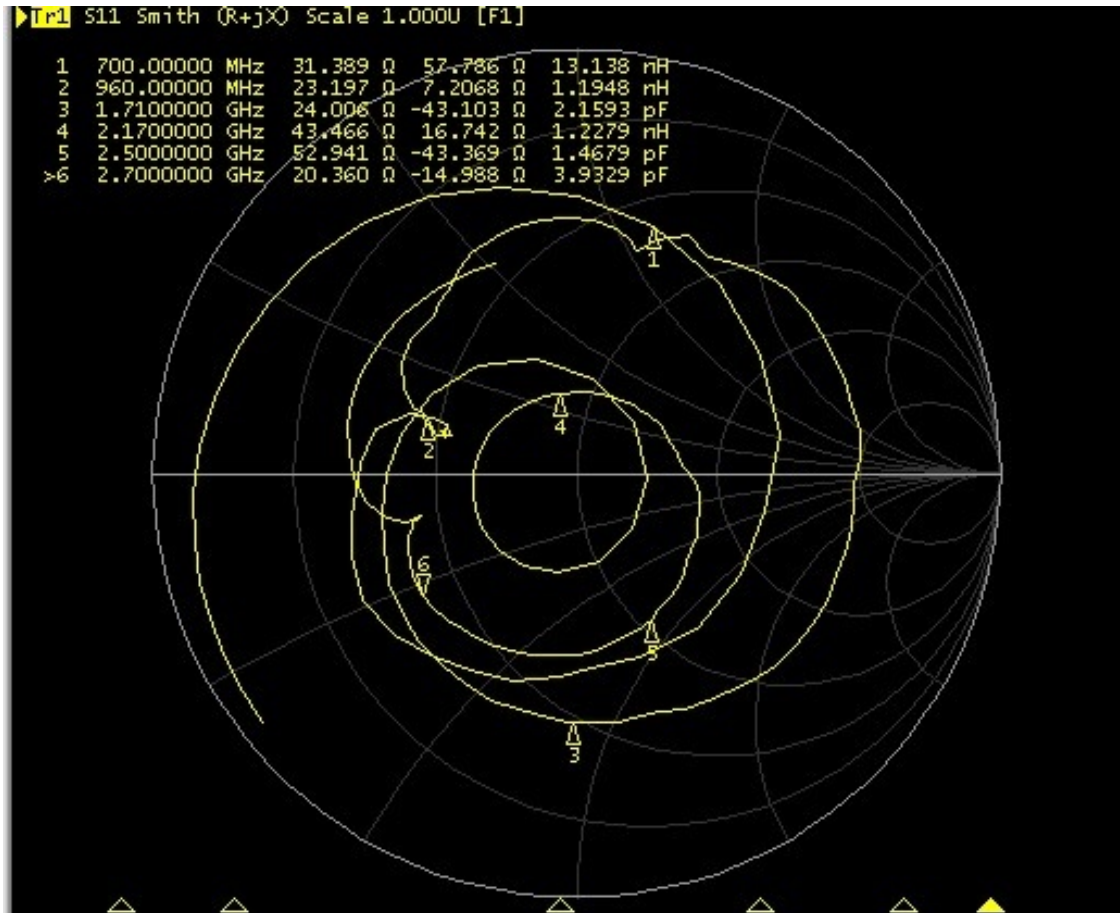


Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Test Measurement – Smith Chart





# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples

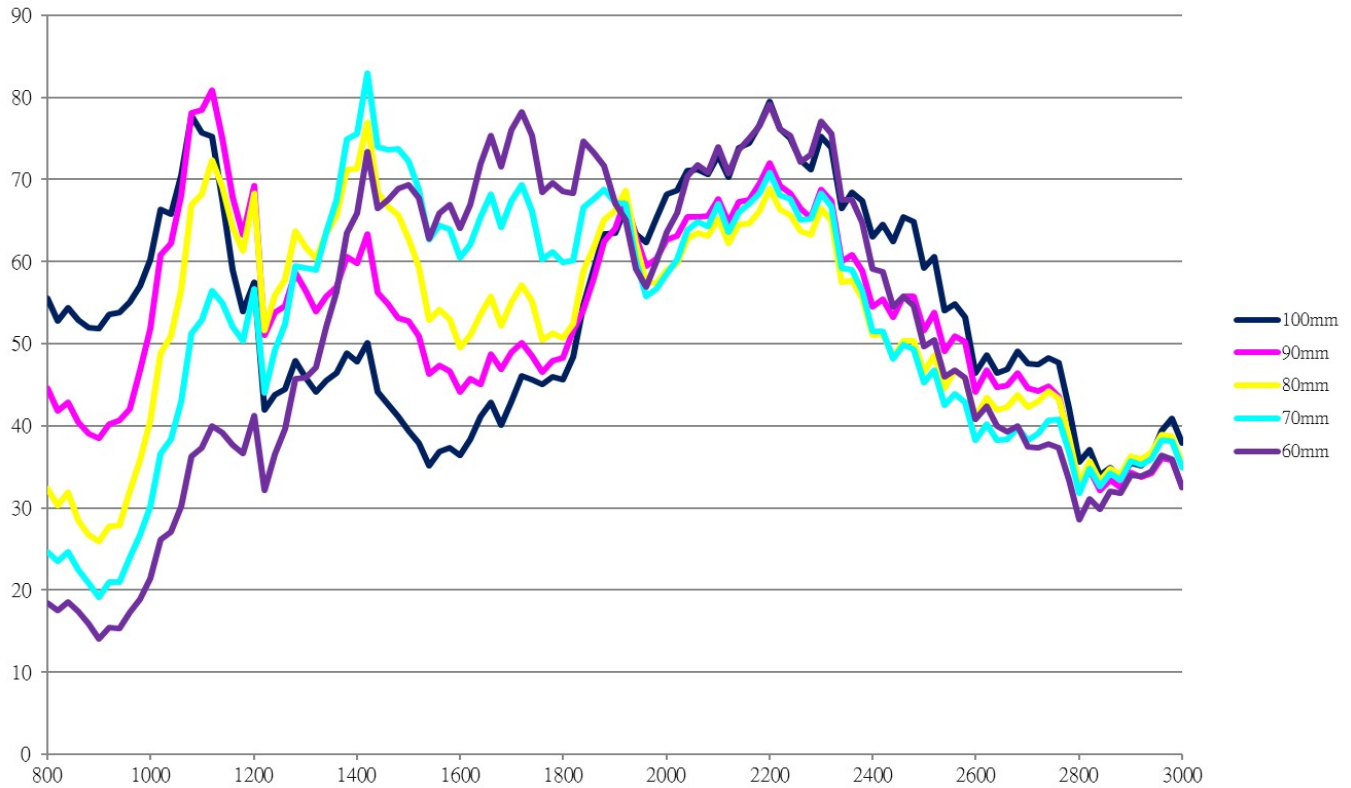


Check Inventory



**37.0 x 5.0 x 5.0 mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

## Gain and Efficiency



### Note :

For the measurement below, a ground plane length of 107 mm is considered.

Frequency (GHz)	824	960	1710	1850	1990	2170	2500	2700
Efficiency (%)	54.50	51.26	45.07	57.30	67.94	77.00	56.66	41.89
Average Gain (dBi)	-2.47	-2.49	-3.46	-2.42	-1.67	-1.13	-2.46	-3.77

# LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples

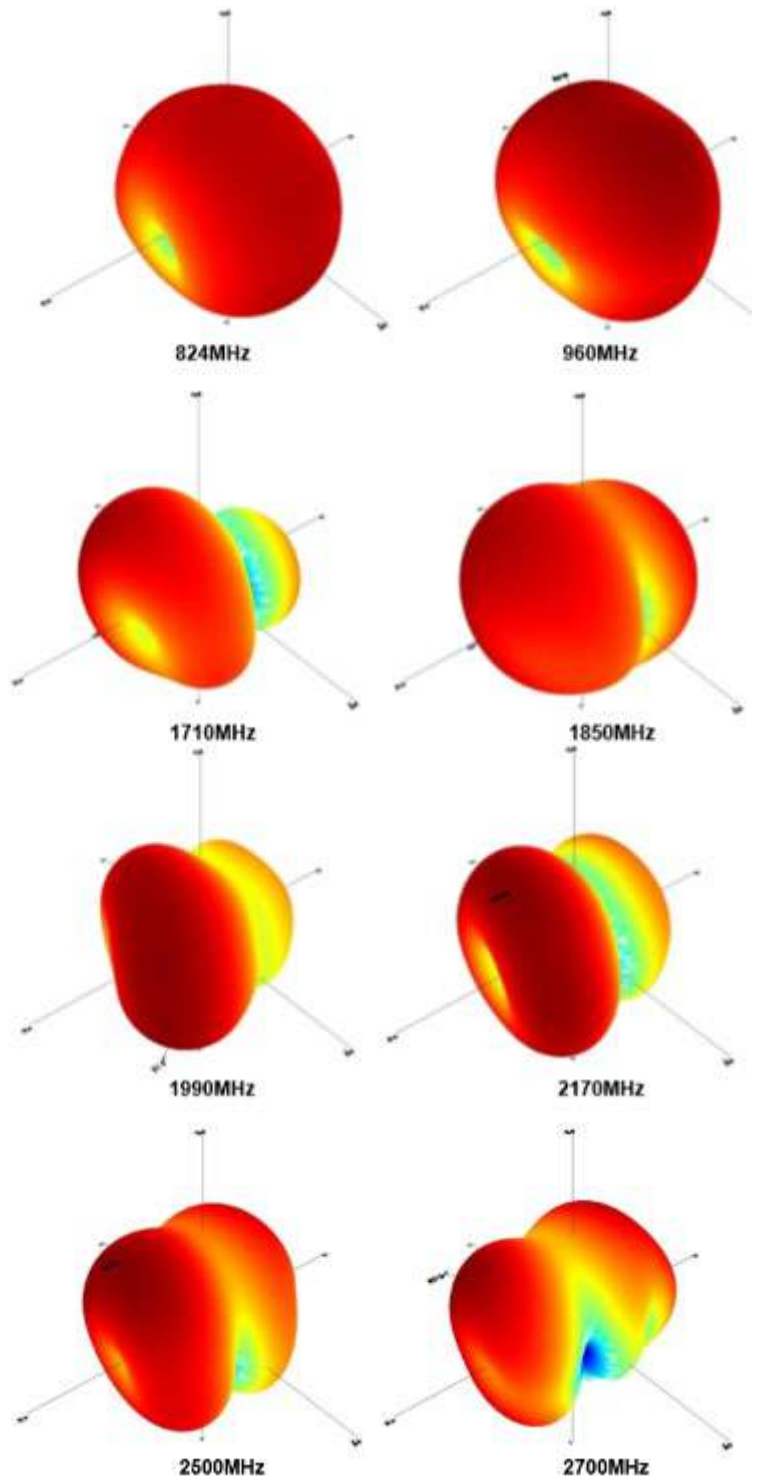
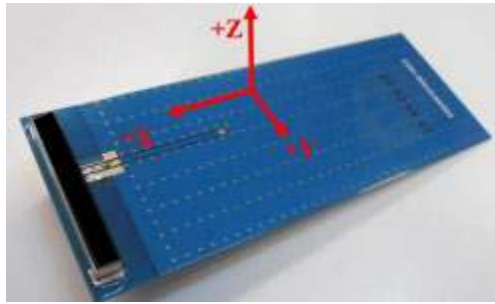


Check Inventory



37.0 x 5.0 x 5.0 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Test measurement – 3D Radiation Pattern



# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples



Check Inventory

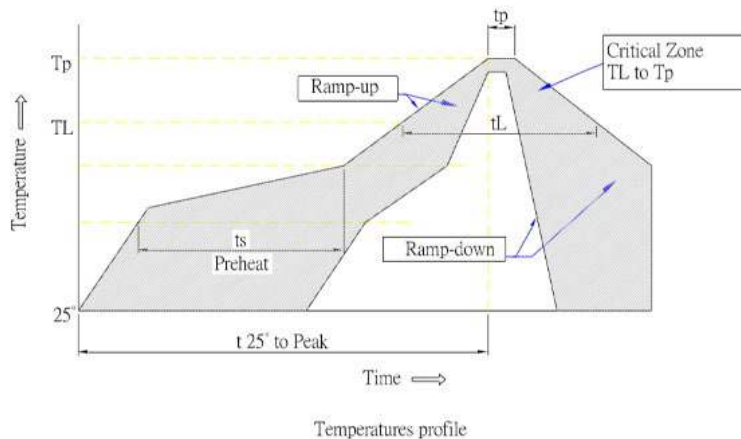


37.0 x 5.0 x 5.0 mm  
**RoHS/RoHS II Compliant**  
 MSL Level = 1

## Reflow Profile

The Planer Inverted-F antenna can be assembled following either Sn-Pb or Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follow:

Phase	Profile Features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
Ramp-Up	Avg Ramp-Up Rate (T <sub>smax</sub> to TP)	3°C /second(max)	3°C /second(max)
Preheat	-Temperature Min (T <sub>Smin</sub> ) -Temperature Max (T <sub>Smax</sub> ) -Time (T <sub>Smin</sub> to T <sub>Smax</sub> )	100°C 150°C 60-120 seconds	100°C 150°C 60-120 seconds
Reflow	-Temperature (TL) -Total Time above TL (t <sub>L</sub> )	183°C 60-150 seconds	217°C 60-150 seconds
Peak	-Temperature (TP) -Time(tp)	235°C 10-30 seconds	260°C 20 - 40 second
Ramp-Down	Rate	6°C / second max.	6°C / second max.
Time from 25°C to Peak Temperature		6 minutes max	8 minutes max.



## Precautions

- Do not direct solder onto the gold electrode of the antenna pattern.
- Do not use the chip antenna in a corrosive gaseous atmosphere for example sulfur gas, chlorine gas.

# LTE Chip Antenna - Automotive Qualified



**ACR3705LZ**

Request Samples



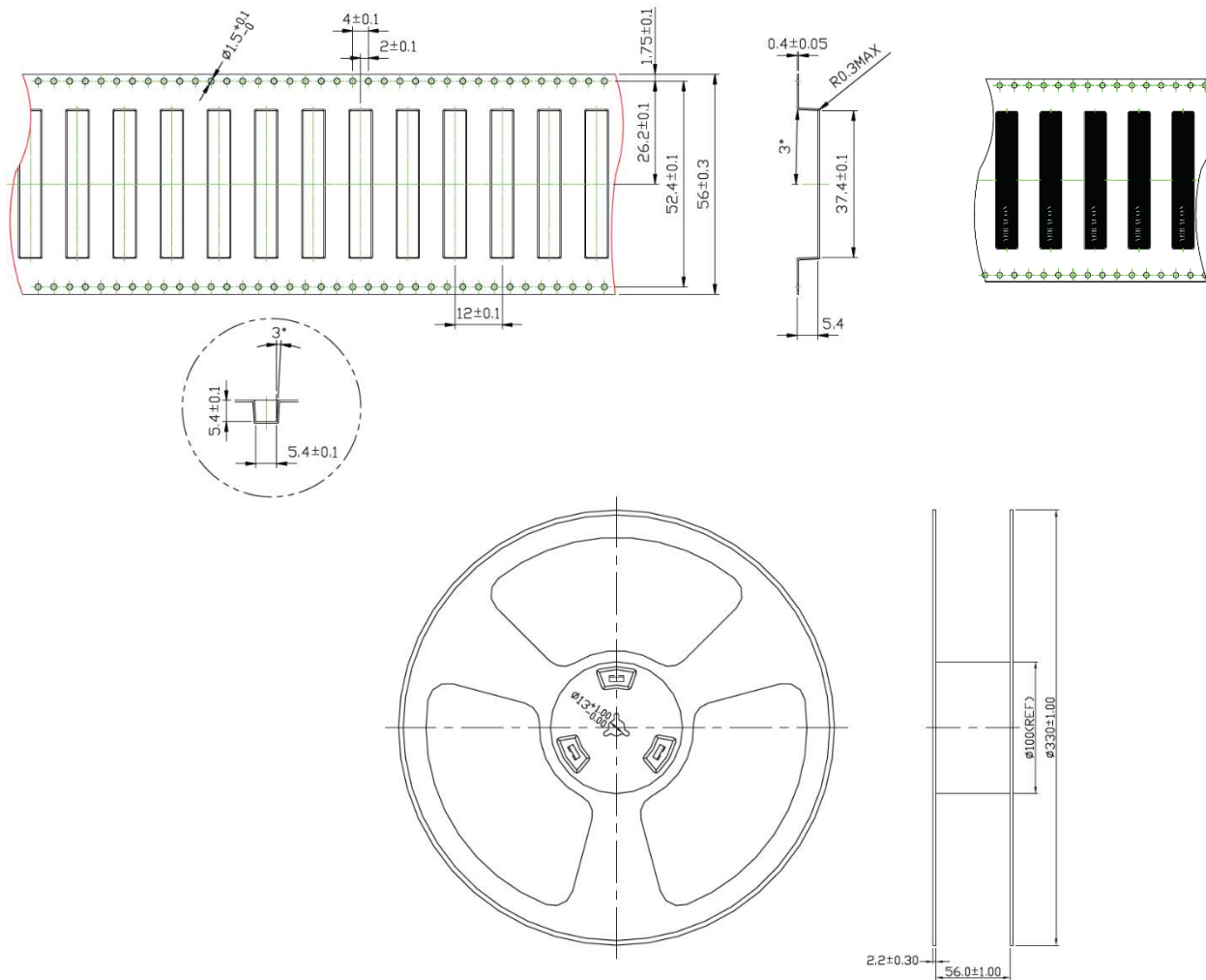
Check Inventory



**37.0 x 5.0 x 5.0 mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

## Packaging Information

1. Blister tape to IEC 286-3, polyester.
2. Pieces per tape /reel : 450pcs



**Unit : mm**

**ATTENTION:** Abracon LLC's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependent Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon LLC is required. Please contact Abracon LLC for more information.



5101 Hidden Creek Ln Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
 For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

**REVISED: 07-16-21**

ABRACON IS  
 ISO9001-2015  
 CERTIFIED